

AIMS Grade 6 Mathematics Sample Test and Think-Throughs

FOR STUDENTS

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GRADE 6



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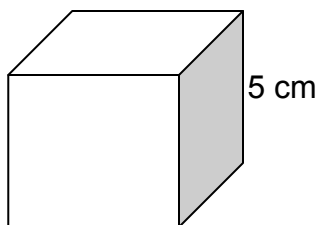
Directions:

Read each problem and select the best answer.

1 What represents a $\frac{2}{3}$ ratio?

- A 30%
- B 0.33
- C 60%
- D 0.67

2 The cube shown has a volume of 125 cm^3 . What is the area of the base of the cube?

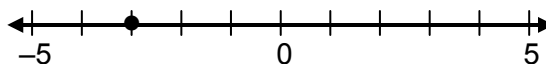


- A 15 cm^2
- B 20 cm^2
- C 25 cm^2
- D 30 cm^2

3 There are 3 classes of 22 students making ice cream sundaes. A sundae can be made using one of 3 syrups and one of 3 candy toppings. Each student makes one sundae. Which expression can be used to find the total number of sundaes made by the students?

- A 3×22
- B $3^2 \times 22$
- C $3 \times 3 \times 22$
- D $3^2 \times 9 \times 22$

4 What is the absolute value of the coordinate of the point shown on the number line?



- A -4
- B -3
- C 3
- D 4

5 What is the value of the expression?

$$2 + 7(3.8 - 1.4)$$

- A 18.8
- B 21.6
- C 27.2
- D 32.8

6 What is equal to $\sqrt[3]{27}$?

- A $\frac{3}{27}$
- B 3
- C $\frac{24}{3}$
- D 9

Go On ►

Use the four stem-and-leaf plots below to answer Numbers 7 and 8. Each stem-and-leaf plot shows the number of points scored by a team in a basketball tournament.

Cobras	
Stem	Leaf
7	2 8
8	4 6
9	1 2 6 6
10	0 5

Tigers	
Stem	Leaf
6	4
7	7
8	5 6 9 9
9	2 3
10	0 0

Sharks	
Stem	Leaf
8	0 6
9	0 2 4 5
10	2 3 7
11	5

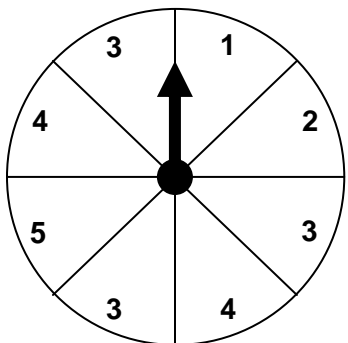
Eagles	
Stem	Leaf
7	2 6
8	9
9	2 8 9
10	1 5 7
11	0

Key	
11	2 = 112

- 7 How many total scores are represented by all stem-and-leaf plots?
- A 10
B 16
C 18
D 40
- 8 What is the greatest number of points scored by any team in one game?
- A 45
B 86
C 113
D 115

Go On ►

- 9 Look at the spinner.



What are the possible outcomes (sample space) of the spinner?

- A 3, 1, 2, 4, 5
 B 3, 1, 2, 3, 4, 5, 4
 C 3, 1, 2, 3, 4, 3, 5
 D 3, 1, 2, 3, 4, 3, 5, 4

- 10 Look at the sequence.

15, 3, 0.6, 0.12, ...

What is the next number in the sequence?

- A 0.015
 B 0.024
 C 0.15
 D 0.24
- 11 Look at the equation.

$$2n + 1.4 = 8.6$$

Which inverse operations will solve the equation?

- A add, then divide
 B add, then multiply
 C subtract, then divide
 D subtract, then multiply

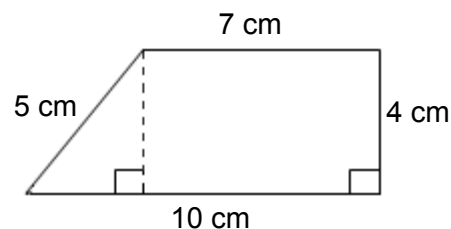
- 12 Look at the expression.

$$6n + 3$$

What is the value of the expression when $n = \frac{2}{3}$?

- A 6
 B 7
 C $7\frac{2}{3}$
 D $9\frac{2}{3}$

- 13 Look at the figure below.



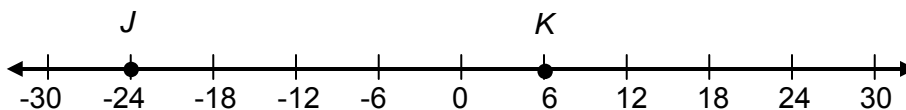
What is the total area of the figure?

- A 26 cm^2
 B 34 cm^2
 C 40 cm^2
 D 68 cm^2
- 14 What is the value of the expression?

$$\frac{6}{7} \div \frac{3}{4}$$

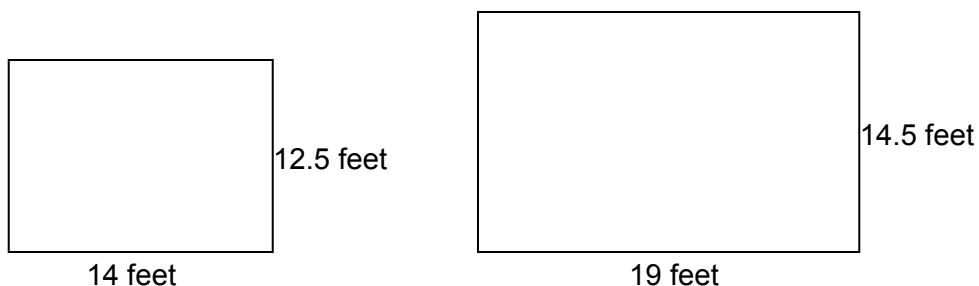
- A $\frac{1}{2}$
 B $\frac{9}{14}$
 C $\frac{8}{7}$
 D $\frac{46}{21}$

- 15 Look at points J and K on the number line.



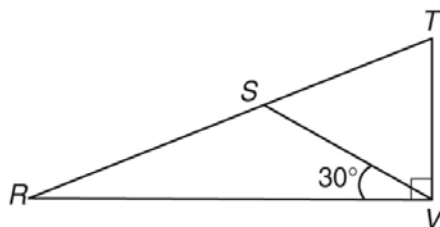
Which expression represents the distance between points J and K on the number line?

- A $-24 + 6$
 - B $-24 + 30$
 - C $6 - (-24)$
 - D $6 - (6 + 24)$
- 16 Kara plans to carpet the entire floor in each of the two rooms shown below.



What is the **best** estimate of the total amount of carpet, in square feet, needed to completely cover both floors?

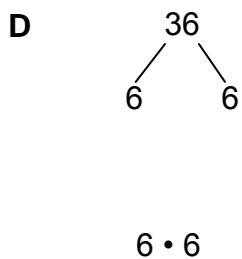
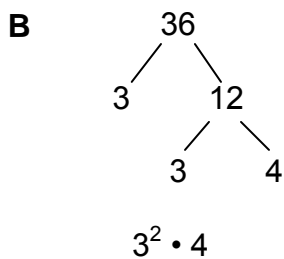
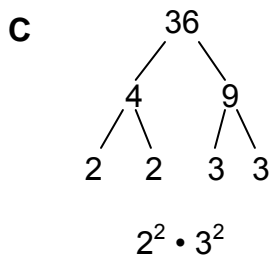
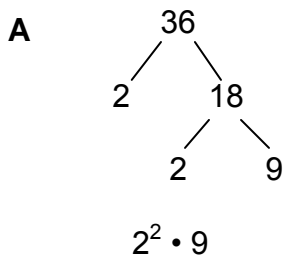
- A between 120 and 150
 - B between 420 and 450
 - C between 460 and 490
 - D between 520 and 550
- 17 What is the measure, in degrees, of the angle that is complementary to $\angle RVS$?



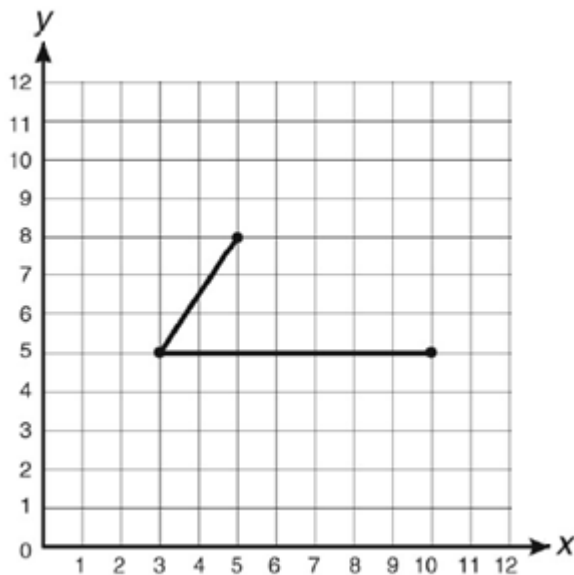
- A 30°
- B 60°
- C 90°
- D 110°

Go On ►

18 Which diagram represents the prime factorization of 36?



19 What are the coordinates of the missing vertex of the parallelogram below?



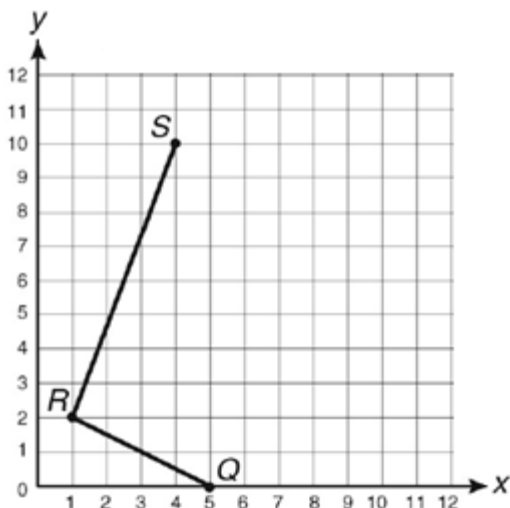
- A** (8, 8)
- B** (10, 8)
- C** (11, 8)
- D** (12, 8)

Go On ►

- 20** Vincent's baseball coach suggested that he drink one-half gallon of water daily. If Vincent drinks one-half gallon of water, how many 8-ounce glasses will he drink?

1 gallon = 128 fluid ounces

- A 6
 B 8
 C 10
 D 12
- 21** On the grid below, points Q, R, and S represent three vertices of a rectangle.



What are the coordinates of point *T*, the vertex that will complete rectangle *QRST*?

- A (7, 8)
 B (8, 7)
 C (8, 8)
 D (8, 9)

- 22** Which expression is the same as 11%?

- A $\frac{1}{11}$
 B 0.11
 C 1.11
 D 1 : 11

- 23** Rafael performed an experiment by spinning the arrow on a spinner 200 times. His results are recorded in the table below.

**Rafael's
Spinner Results**

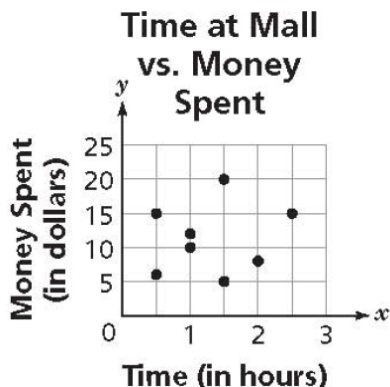
Color	Frequency
Blue	46
Red	105
Green	49

Rafael will spin the arrow 20 more times. Based on the results in the table, which is closest to the number of times he should expect the arrow to land on a red section?

- A 5
 B 10
 C 15
 D 20
- 24** Randy has \$7.50 to use on buying notebooks for school. If each notebook costs \$1.09 including tax, how many can Randy buy?

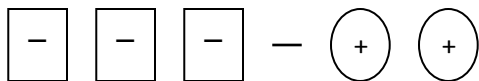
- A 5
 B 6
 C 7
 D 8

- 25** The scatter plot shows the relationship between the amount of time Casey was at the mall and the amount of money she spent there.



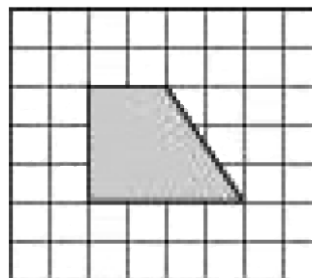
Which statement best describes the relationship between the amount of money Casey spent and the amount of time she was at the mall?

- A The amount of money spent was not affected by the amount of time at the mall.
 - B The amount of money spent decreased as the amount of time at the mall increased.
 - C The amount of money spent increased as the amount of time at the mall increased.
 - D The amount of money spent remained the same without regard to the amount of time at the mall.
- 26** Which expression matches the model shown?



- A $-2 + 3$
- B $3 + 2$
- C $-3 - 2$
- D $2 - 3$

- 27** Lauren wants to put a brick border around her garden. A drawing of her garden is represented by the shaded section on the grid below.



Key= 1 unit is approximately 2 meters

What is closest to the number of meters of brick border Lauren will need to put around her garden?

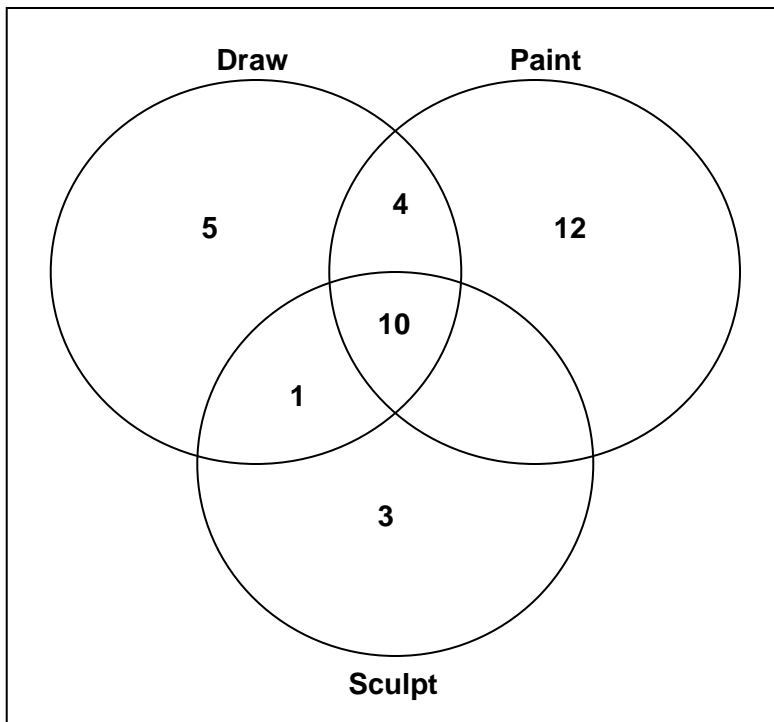
- A 12 meters
 - B 16 meters
 - C 20 meters
 - D 26 meters
- 28** Look at the table of values.

x	y
-1	-4
0	-1
1	2
2	5
3	8

Which equation represents the relationship between x and y?

- A $y = x - 3$
- B $y = 3x + 1$
- C $y = -x - 3$
- D $y = 3x - 1$

- 29** Valerie has 35 students in her art class. She asked each student what types of activities they like to do and made a Venn diagram of the results.



How many students in Valerie's class told her that they only like to draw and sculpt?

- A 1
 - B 8
 - C 10
 - D 11
- 30** Kelly's math teacher asked her to solve the problem below.

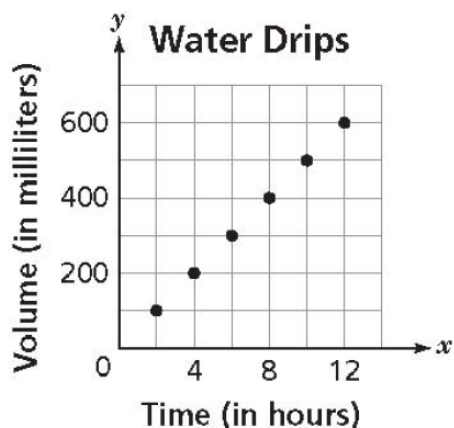
Jim and Don are playing darts. Jim has scored 16, 12, and 2 points. Don's turn is after Jim's. Don has scored 12, 10, and 2 points. They have taken the same number of turns. Who is ahead at this time?

Which statement does Kelly need for solving the problem?

- A Jim and Don are playing darts.
- B Don's turn is after Jim's.
- C Don has scored 12, 10, and 2 points.
- D They have taken the same number of turns.

Go On ►

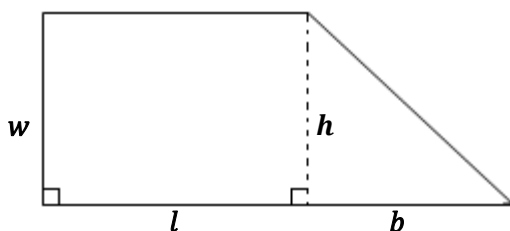
31 Look at the graph.



If the water continues to drip at the same rate, how many milliliters of water will have dripped at 14 hours?

- A 600
- B 700
- C 800
- D 900

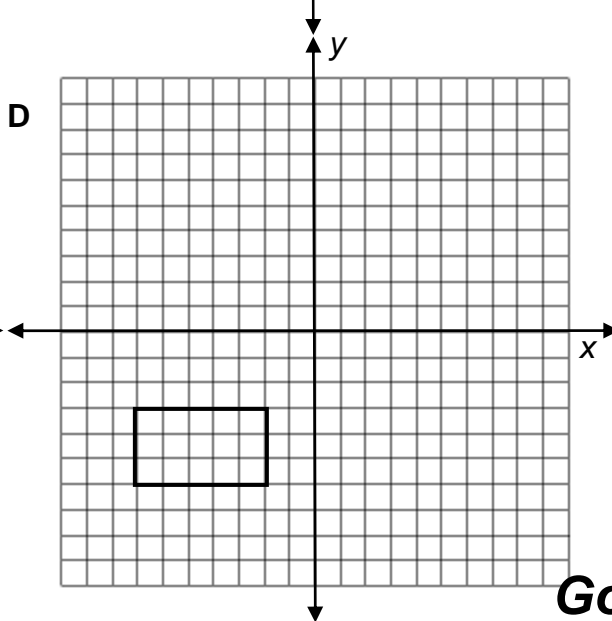
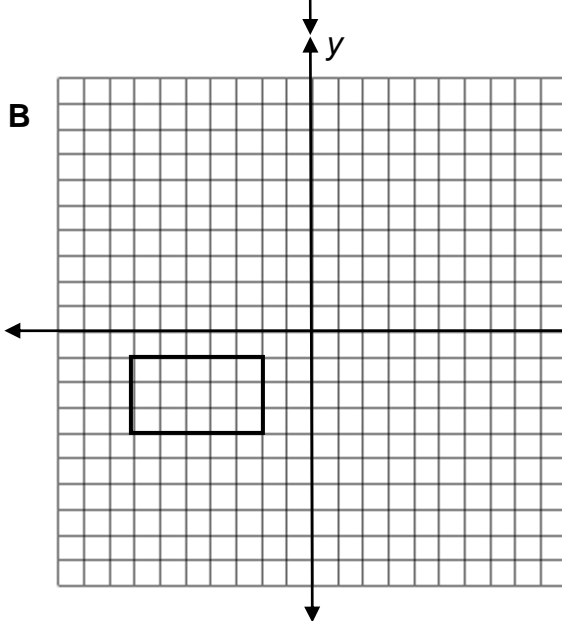
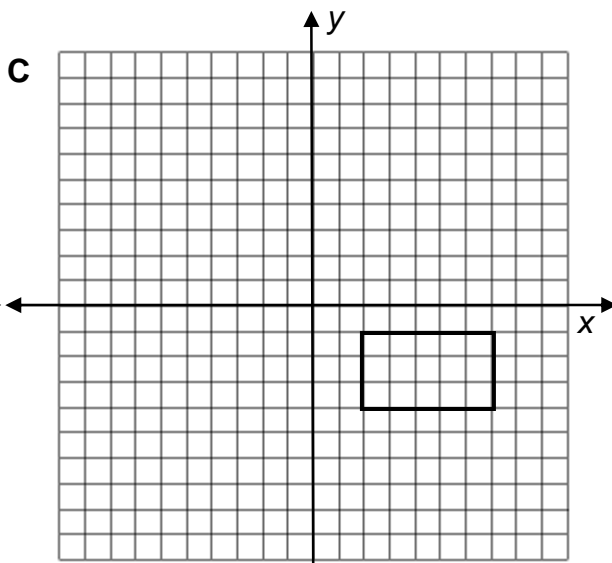
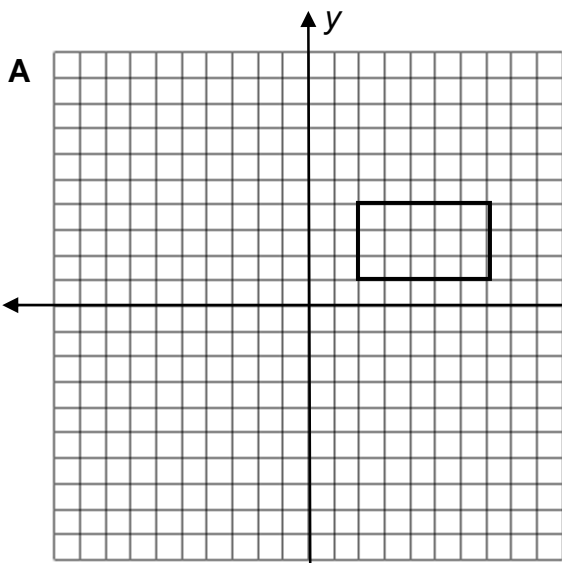
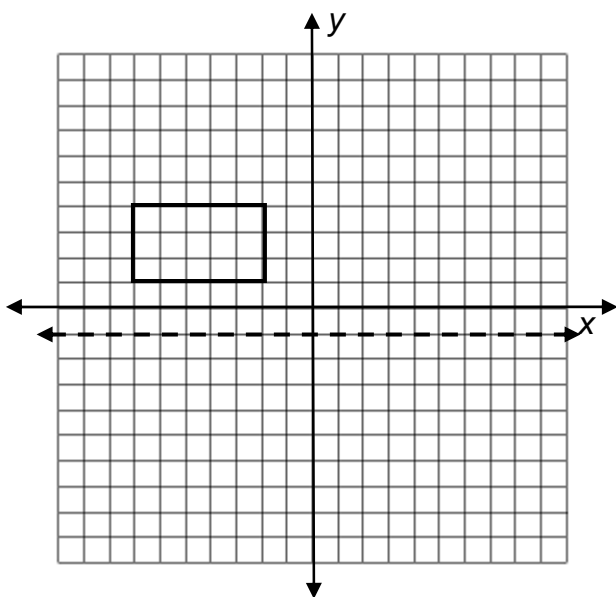
32 Which statement explains how to find the area of the figure below?



- A Find the length times the width of the rectangle, then add that to the base times the height of the triangle.
- B Find the length times the width of the rectangle, then add that to one half of the base times the height of the triangle.
- C Find two times the length of the rectangle plus two times the width of the rectangle, then add that to the base times the height of the triangle.
- D Find two times the length of the rectangle plus two times the width of the rectangle, then add that to one half of the base times the height of the triangle.

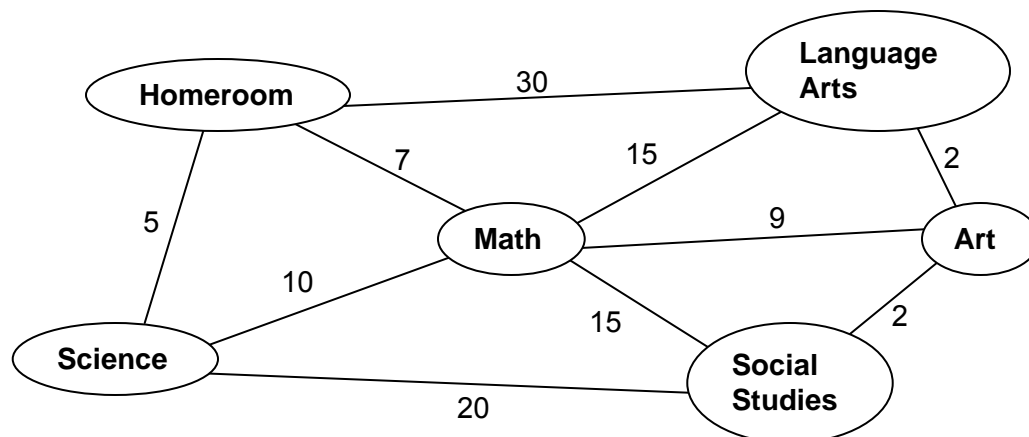
Go On ►

33 Which graph shows a reflection of the rectangle across the horizontal dotted line?



Go On ►

- 34** Scott delivers the 6th grade newsletter to five rooms at his school. He must find the quickest route. The vertex-edge graph shows the rooms that Scott must deliver to and the time, in seconds, it takes him to get from room to room.



If Scott begins and ends at his Homeroom, what is the quickest route for him to take and to make sure he visits each room only once?

- A** Homeroom→Science→Math→Social Studies→Art→Language Arts→Homeroom
- B** Homeroom→Science→Social Studies→Art→Language Arts→Math→Homeroom
- C** Homeroom→Language Arts→Math→Art→Social Studies→Science→Homeroom
- D** Homeroom→Language Arts→Art→Math→Social Studies→Science→Homeroom



AIMS Grade 6 Mathematics Sample Test Answer Key

The answer key below shows you the Strand, Concept, and Performance Objective that each item is addressing. This will help you to identify which Concepts from the AZ Academic Mathematics Standards that you may need to study more.

1	1.1.1	D
2	4.4.6	C
3	5.2.3	A
4	1.1.5	C
5	1.2.7	A
6	1.1.6	B
7	2.1.1	D
8	2.1.2	D
9	2.2.3	A
10	3.1.1	B
11	3.3.2	C
12	3.3.4	B
13	4.4.5	B
14	1.2.4	C
15	1.2.1	C
16	1.3.2	C
17	4.1.2	B

18	1.1.2	C
19	4.3.2	D
20	4.4.2	B
21	4.3.2	C
22	1.1.1	B
23	2.2.1	B
24	1.2.3	B
25	5.2.7	A
26	1.2.1	C
27	1.3.2	D
28	3.2.1	D
29	2.3.2	A
30	5.2.2	C
31	3.4.1	B
32	5.1.2	B
33	4.2.2	D
34	2.4.2	B